AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) Control system (15, 16, 17, 18, 19, 20, 21) for a continuously variable transmission ~~and continuously variable transmission wherein such is utilised~~, the continuously variable transmission comprising a drive belt (1) located between pulley discs (8, 9, 10 and 11) of a first pulley (4) and of a second pulley (5), the pulleys (4, 5) being rotatable at a rotational speed and being operable by means of a first and a second piston/cylinder assembly (12, 13) respectively, and the control system (15, 16, 17, 18, 19, 20, 21) controls the respective cylinder pressure (Pf or Ps) in said first and second piston/cylinder assemblies (12, 13), at least based on a torque signal (Tt) representing the torque to be transmitted by the transmission and two speed signals (Nf, Ns) representing the rotational speeds (Nf, Ns) of said first and second pulley (4, 5), for clamping said drive belt (1) between said discs (8, 9, 10 and 11) thereby enabling torque transmission between said pulleys (4, 5) and said drive belt (1), wherein during operation of the transmission the control system (15, 16, 17, 18, 19, 20, 21):

- determines a minimum cylinder pressure (Pf,min, Ps,min) for each of said first and said second piston/cylinder assembly (12, 13), the determination of said minimum cylinder pressures (Pf,min, Ps,min) occurring on a continuous basis, at which minimum cylinder pressure (Pf,min, Ps,min) said torque transmission occurs virtually without mutual movement of the drive belt (1) and the respective pulley discs (8, 9 and 10, 11),

- determines a further minimum cylinder pressure (Pff,min or Psf,min) in one of said first and second piston cylinder assembly (12, 13) based on a rate of change signal (ROC) representing a desired rate of change of the ratio of the rotational speeds of said pulleys (4, 5), at which further minimum cylinder pressure (Pff,min or Psf,min) said desired rate of change may be achieved, and

- controls the respective cylinder pressure (Pf or Ps) for the respective piston/cylinder assembly (12 or 13) to a level which is at any time equal to, or higher than, both of the respective minimum cylinder pressure (Pf,min, Ps,min) and of the respective further minimum cylinder pressure (Pff,min or Psf,min).

2. (original) Control system (15, 16, 17, 18, 19, 20, 21) for a continuously variable transmission and continuously variable transmission wherein such is utilised according to

[[c aim]] claim 1, ~~the continuously variable transmission comprising a drive belt (1) located between pulley discs (8, 9, 10 and 11) of a first pulley (4) and of a second pulley (5), the pulleys (4, 5) being rotatable at a rotational speed and being operable by means of a first and a second piston/cylinder assembly (12, 13) respectively, and the control system (15, 16, 17, 18, 19, 20, 21) controls the respective cylinder pressure (Pf or Ps) in said first and second piston/cylinder assemblies (12, 13), at least based on a torque signal (Tt) representing the torque to be transmitted by the transmission and two speed signals (Nf, Ns) representing the rotational speeds of said first and second pulley (4, 5), fo clamping said drive belt (1) between said dises (8, 9, 10 and 11) thereby enabling torque transmission between said pulleys (4, 5) and said drive belt (1),~~ characterised in that, during operation of the transmission wherein a rate of change of the ratio of the rotational speeds of said pulleys (4, 5) is relatively large, at least one cylinder pressure (Pf or Ps) is maintained at a substantially higher level than during stationary operation of the transmission, wherein the ratio of the rotational speeds of said pulleys (4, 5) is virtually constant.

3. (previously presented) Control system (15, 16, 17, 18, 19, 20, 21) for a continuously variable transmission and

continuously variable transmission wherein such is utilised according to claim 1, whereby an actual torque to be transmitted by the transmission (Tp) varies within a torque range (Tp,min; Tp,max) of possible values, characterised in that in a predominant part of said torque range (Tp,min; Tp,max) said torque signal (Tt) represents the actual torque to be transmitted (Tp) multiplied by a safety factor substantially equal to 1.3.

4. (currently amended) Control system (15, 16, 17, 18, 19, 20, 21) for a continuously variable transmission and continuously variable transmission wherein such is utilised according to claim 1, characterised in that the relationship between the rate of change, RC, of the ratio of the rotational speed of said pulleys (4, 5) and said clamping of the belt (1) between the pulley discs (8, 9, 10 and 11) is given by the equation:

$$\mathbf{RC} = -\mathbf{M}_{\mathbf{Nf/Ns}} \bullet \mathbf{Ns} \bullet \mathbf{Ff} \bullet \left(\mathbf{KsKf} - \frac{\mathbf{Fs}}{\mathbf{Ff}} \right)$$

wherein:

- $M_{Nf/Ns}$ is an experimentally determined (positive) parameter which varies with the ratio of the rotational speeds of said pulleys (4, 5),

- Ff is the force with which the drive belt (1) is clamped between the discs (8, 9) of the first pulley (4),

- Fs is the force with which the drive belt (1) is clamped between the discs (10, 11) of the second pulley (5),

- KsKf is the ratio of said forces Fs and Ff at which said rate of change would be zero, and

- Ns is the rotational speed of the second pulley.

5. (currently amended) Control system (15, 16, 17, 18, 19, 20, 21) for a continuously variable transmission and continuously variable transmission wherein such is utilised, according to claim 1, the control system (15, 16, 17, 18, 19, 20, 21) comprising an electronic control unit (17, 18, 19) with a first control module (17) generating a first control current (If) for operating said first valve (15), a second control module (18) generating a second control current (Is) for operating the second valve (18) and a hydraulic circuit (15, 16, 20, 21) for allowing hydraulic medium to and from said first and said second piston/cylinder assembly (12, 13), said circuit at least being provided with a first valve (15), a second valve (16), a pump (20) and a reservoir for hydraulic medium (21), characterised in that,

- said modules (17, 18) are capable of mutually providing each other with at least one signal (Sf, Ss),

- in that a control module (17 or 18) incorporates a mathematical representation of a mass balance of the hydraulic circuit (15, 16, 20, 21)

- and in that said control module (17 or 18) is capable of outputting a response signal representing a control current (If or Is) required for effecting a desired pressure response of the hydraulic circuit (15, 16, 20, 21) based on ~~said~~ <u>the</u> mathematical representation.

6. (currently amended) Control system (15, 16, 17, 18, 19, 20, 21, 20, 21) for a continuously variable transmission and continuously variable transmission wherein such is utilised according to claim 5, characterised in that, the control system (15, 16, 17, 18, 19, 20, 21) comprises a sub-unit (19) physically separable from said control system (15, 16, 17, 18, 19, 20, 21), which sub-unit (19) contains ~~said~~ <u>the</u> mathematical representation.

7. (currently amended) Control system (15, 16, 17, 18, 19, 20, 21) for a continuously variable transmission and continuously variable transmission wherein such is utilised according to claim 5, the pump (20) circulating a variable flow

~~(Qop)~~ of hydraulic medium through the hydraulic circuit (15, 16, 20, 21), characterised in that, ~~said~~ the mathematical representation takes into account at least said flow generated by the pump ~~(Qop)~~, the amount of flow through the valves ~~(Qsa, Qsp+Qpa)~~ and the amount of flow to and/or from the piston/cylinder assemblies ~~(Qfp and/or Qsp)~~.

8. (original) Control system (15, 16, 17, 18, 19, 20, 21) for a continuously variable transmission and continuously variable transmission wherein such is utilised according to claim 7, characterised in that, the mathematical representation further takes into account leakage of hydraulic medium from the piston/cylinder assemblies (12; 13) as well as a value for the compressibility of the hydraulic medium.

9. (previously presented) Control system (15, 16, 17, 18, 19, 20, 21) for a continuously variable transmission and continuously variable transmission wherein such is utilised according to claim 5, wherein the first valve (15) determines the cylinder pressure (Pf) in the first piston/cylinder assembly (12) and wherein the second valve (16) determines a cylinder pressure (Ps) in the second piston cylinder assembly (13), characterised in that, the first valve (15) is a pressure control valve (15), which controls the maximum pressure in the hydraulic circuit by

controlling a flow (Qsa) from the pump (20) to a reservoir (21) for hydraulic medium and in that the second valve (16) is a flow control valve (16), which controls flow (Qsp) from the pump (20) to the second piston/cylinder assembly (13) and the flow (Qpa) from the second piston/cylinder assembly (13) to said reservoir (21).

10. (original) Control system (15, 16, 17, 18, 19, 20, 21) for a continuously variable transmission and continuously variable transmission wherein such is utilised according to claim 9, wherein the second control module (18) is capable of controlling the ratio of the rotational speeds of said pulleys (4, 5) by generating a second control current (Is), based on a difference between an actual rotational speed of the second pulley (5) and a desired rotational speed for said second pulley (5), for effecting a minimisation of said difference through adjusting the second valve (16), characterised in that, the second control module (18) controls said ratio of the rotational speeds through generating a difference signal, representing said difference, which is fed through PI-regulator having a linear response and subsequently through a linearisation module, the response of which depends on a number of transmission variables and is based on a linearisation algorithm, the output signal of said linearisation module being the second control current (Is)

and in that said modules (17, 18) are capable of mutually providing each other with at least one signal (Sf, Ss), representing respectively the cylinder pressure (Pf) in the first piston/cylinder assembly (12, 13) and said desired rotational speed of the second pulley (5).

11. (currently amended) Control system (15, 16, 17, 18, 19, 20, 21) for a continuously variable transmission and continuously variable transmission wherein such is utilised according to claim 10, characterised in that, the linearisation module at least comprises ~~said~~ the mathematical representation of said mass balance of the hydraulic circuit (15, 16, 20, 21).

12. (currently amended) Control system (15, 16, 17, 18, 19, 20, 21) for a continuously variable transmission and continuously variable transmission wherein such is utilised according to claim 9, characterised in that, the first control module (17) is capable of controlling said clamping of the drive belt (1) by generating a control current (If) for controlling the first ~~vale~~ valve (15) so that the cylinder pressure (Pf) in the piston/cylinder assembly (12) of the first pulley (4) is equal to the highest value of either:

- a minimum pressure (Pf,min) at which torque transmission between the first pulley (4) and the drive belt (1) occurs virtually without mutual movement, or

- a minimum pressure required for the cylinder pressure (Ps) in the piston/cylinder assembly (13) of the second variable pulley (5) to become equal to a minimum cylinder pressure (Ps,min) at which torque transmission between the second pulley (5) and the drive belt (1) occurs virtually without mutual movement, or

- a minimum pressure (Pff,min) at which the ratio of the rotational speed of the first and the second pulley (4, 5) decreases at a desired rate of change, or

- a minimum pressure required for the cylinder pressure (Ps) in the piston/cylinder assembly (13) of the second variable pulley (5) to become equal to a further minimum cylinder pressure (Psf,min) at which the ratio of the rotational speed of the first and the second pulley (4, 5) increases at a desired rate of change.

13. (previously presented) Control system (15, 16, 17, 18, 19, 20, 21) for a continuously variable transmission and continuously variable transmission wherein such is utilised according to claim 1, characterised in that, the control system (15, 16, 17, 18, 19, 20, 21) is provided with change rate

restriction means for reducing said desired rate of change of the ratio of the rotational speed of said pulleys (4, 5).

14. (original) Control system (15, 16, 17, 18, 19, 20, 21) for a continuously variable transmission and continuously variable transmission wherein such is utilised according to claim 13, characterised in that, said change rate restriction means are capable of determining the flow generated by the pump (Qop) and a flow required for changing the ratio of said rotational speeds at a desired rate of change, and of reducing said desired rate of change when said flow generated by the pump (Qop) is smaller than the flow required for changing the ratio of said rotational speeds.

15. (original) Control system (15, 16, 17, 18, 19, 20, 21) for a continuously variable transmission and continuously variable transmission wherein such is utilised according to claim 13, characterised in that, said change rate restriction means are capable of determining an actual cylinder pressure (Pf or Ps) and a cylinder pressure required for changing the ratio of said rotational speeds at a desired rate of change, and of reducing said desired rate of change when said actual cylinder pressure (Pf or Ps) is smaller than the cylinder pressure required for changing the ratio of said rotational speeds.

16. (previously presented) Control system (15, 16, 17, 18, 19, 20, 21) for a continuously variable transmission and continuously variable transmission wherein such is utilised according to claim 1 wherein the cylinder pressure (Pf) in the first piston/cylinder assembly (12) is measured by means of a pressure sensor, characterised in that, the control system (15, 16, 17, 18, 19, 20, 21) is provided with calculating means for calculating the cylinder pressure (Ps) in the second piston/cylinder assembly (13) based signals at least representing said cylinder pressure (Pf) in the first piston/cylinder assembly (12), the rotational speed of the first pulley (4) and the rotational speed of the second pulley (5).

17. (cancelled).

18. (currently amended) Motor vehicle provided with an engine (22) having an engine shaft (23), [[a]] the continuously variable transmission according to claim [[17]] 1, and a drive shaft (24) for driving driven wheels (25) of the motor vehicle, characterised in that, the first pulley (4) is drivingly connected to the drive shaft (24) and the second pulley (5) is drivingly connected to the engine shaft (23).

19. (original) Motor vehicle according to claim 18, characterised in that, the motor vehicle comprises an adjustable clutch (26), which clutch (26) is adjusted to be capable of transmitting a maximum amount of torque from the engine (22) to the driven wheels (25), said maximum amount of torque being smaller than a torque transmittable by the continuously variable transmission without relative movement between the drive belt (1) and the pulley discs (8, 9, 10 and 11).

20. (new) Control system for a continuously variable transmission having a drive belt (1) located between pulley discs (8, 9, 10 and 11) of a first pulley (4) and of a second pulley (5), the pulleys (4, 5) being rotatable at a rotational speed and being operable by means of a first and a second piston/cylinder assembly (12, 13) respectively, the control system comprising:

control system elements that (15, 16, 17, 18, 19, 20, 21) control the respective cylinder pressure (Pf or Ps) in the first and second piston/cylinder assemblies (12, 13), at least based on a torque signal (Tt) representing the torque to be transmitted by the transmission and two speed signals (Nf, Ns) representing the rotational speeds (Nf, Ns) of the first and second pulley (4, 5), for clamping the drive belt (1) between the discs (8, 9, 10 and 11) thereby enabling torque transmission between the pulleys (4, 5) and the drive belt (1),

wherein during operation of the transmission the control system (15, 16, 17, 18, 19, 20, 21)

1) determines a minimum cylinder pressure (Pf,min, Ps,min) for each of the first and the second piston/cylinder assembly (12, 13), the determination of the minimum cylinder pressures (Pf,min, Ps,min) occurring on a continuous basis, at which minimum cylinder pressure (Pf,min, Ps,min) the torque transmission occurs virtually without mutual movement of the drive belt (1) and the respective pulley discs (8, 9 and 10, 11),

2) determines a further minimum cylinder pressure (Pff,min or Psf,min) in one of the first and second piston cylinder assembly (12, 13) based on a rate of change signal (ROC) representing a desired rate of change of the ratio of the rotational speeds of the pulleys (4, 5), at which further minimum cylinder pressure (Pff,min or Psf,min) the desired rate of change may be achieved, and

3) controls the respective cylinder pressure (Pf or Ps) for the respective piston/cylinder assembly (12 or 13) to a level which is at any time equal to, or higher than, both of the respective minimum cylinder pressure (Pf,min, Ps,min) and of the respective further minimum cylinder pressure (Pff,min or Psf,min).